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DISCOVERY SCIENTIFIC SOCIETY

A GIST tumor mimicking an ovarian tumor diagnosed intraoperatively: A 50-years-old woman case study

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ABSTRACT

Introduction: Neoplastic growths involving women's genital organs, such as uterine myomas and ovarian tumors, are the most common benign lesions occurring in the mid-and lower abdominal regions. Large size of neoplastic growths can lead to the masking of other cancerous and non-cancerous processes taking place in the abdominal cavity. *The Aim:* This work aims to show the diagnostic difficulties of tumors in the abdomen and pelvis. *Case Report:* This paper presents a 50-year-old patient in whom a massive tumor was found in the retroperitoneal space at the level of the jejunum during gynecologic surgery for excision of a left ovarian cancer. After diagnosis, the tumor turned out to be a subserosal neoplasm. *Results:* When a solid mass is present in the pelvic region, especially if there are other unusual symptoms, the possibility of lesions of non-gynecological origin should be considered. During surgery, every effort should be made to identify the tumor's origin and associated anatomical structures. *Conclusions:* For GIST tumors, complete removal of the cancer should be sought, as only surgery increases the chance of long-term survival.

Keywords: Ovarian cancer, subcutaneous neoplasm, GIST

1. INTRODUCTION

GIST is an acronym from the English histopathological name "gastrointestinal stromal tumors", which stands for gastrointestinal submucosal tumors. They belong to the sarcomas and account for 5% of all mesenchymal tumors in humans. Stromal tumours are the most common gastrointestinal sarcomas.

Approximately 600 people develop GIST every year in Poland (Sanchez-Hidalgo et al., 2018). Detection of Cd-117 overexpression on histopathological examination is the basis for diagnosing this cancer (Søreide et al., 2016). Most commonly, GISTs develop in the stomach (70-75%), small intestine (20-30%), or other sections of the gastrointestinal tract (about 10%).

The size of tumors can range from 1-2 cm to even more than 25 cm, and there are multiple cases. In every second case at the diagnosis, metastases are already present, most often localized on the peritoneum and in the liver. They are usually detected in patients over 60 years old. Typical symptoms are uncharacteristic (if present at all)-they include nausea, vomiting, constipation, abdominal pain, anemia, tarry stools, and pressure symptoms (Keung and Raut, 2017). About 20% of cases are entirely asymptomatic and are incidentally diagnosed through endoscopic or imaging studies, while 10% of cases are found at autopsy (Rutkowski et al., 2017a).

2. CASE DESCRIPTION

The patient was referred to the Department of Gynecology because of abnormalities shown during a gynecological examination performed. After admission to the department, diagnostic tests were performed. A vaginal ultrasound was performed, during which was found. The uterine corpus was posteriorly sagittal, myometrial, and heterogeneous. The AP dimensions were 78mm, with the largest measuring 51 x 48 m and 22 x 20 mm. It was also found that the endometrium was 10 mm thick, and the right ovary had a follicle measuring 16 x 10 mm. At the level of the appendages of the left ovary, a solid, richly vascularized lesion with low resistance flow was found, measuring 217 x 150 mm. No fluid was found in the vicinity of the reproductive organs. On T/A examination, the abdominal cavity, up to about 4p/ below the rib arches, was found to be filled with a tumor of mixed echogenicity and a rich vascular pattern. A chest X-ray showed no abnormalities.

An abdominal ultrasound was performed, during which it was found that the collecting system of the left kidney was dilated (width of the calyxes to 25 mm, width of the pelvis to 18 mm, width of the sub pelvic segment of the left ureter visible in the examination - to 7 mm. The UKM image of the right kidney was also slightly dilated. In the epigastrium, mid-abdomen, and lower abdomen, a mass of a large tumor with approximate dimensions of 18.5x11 cm was visible with a heterogeneous, predominantly solid structure. Free fluid was not found in the abdominal cavity. Subsequently, a CT scan of the abdomen with contrast was performed, confirming the presence of a solid mass measuring 12x19x22 cm, with calcifications and a large peritoneal implant. After administration of the contrast agent, the solid part was enhanced up to 85 IU in places, in the late phase of contrast washout (Figure 1-3).

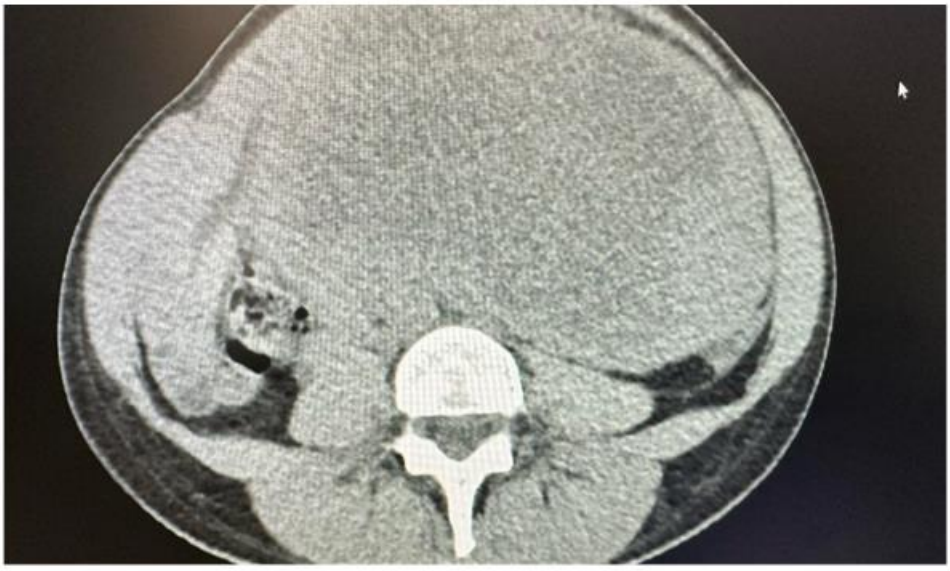

Figure 1 A cross-sectional computed tomography scan showing a nodular lesion located in the mid-abdomen.

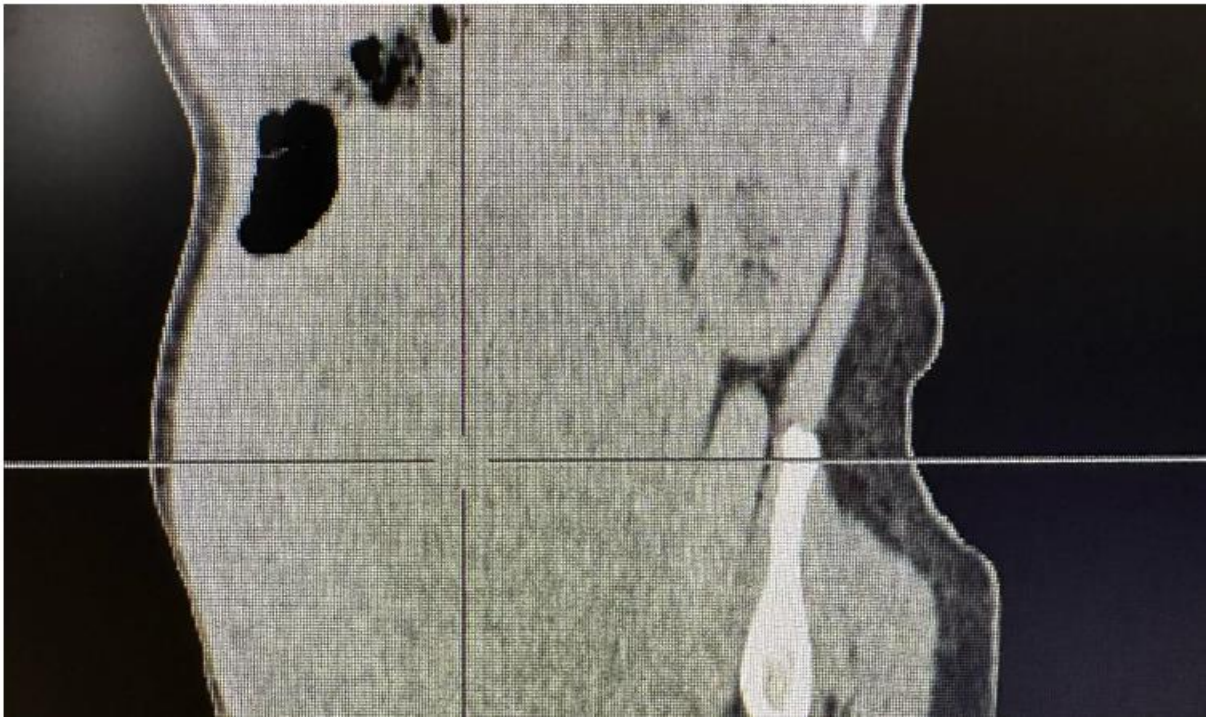

Figure 2 Sagittal computed tomography scan showing a nodular lesion located in the mid-abdomen, lower abdomen, and upper abdomen.

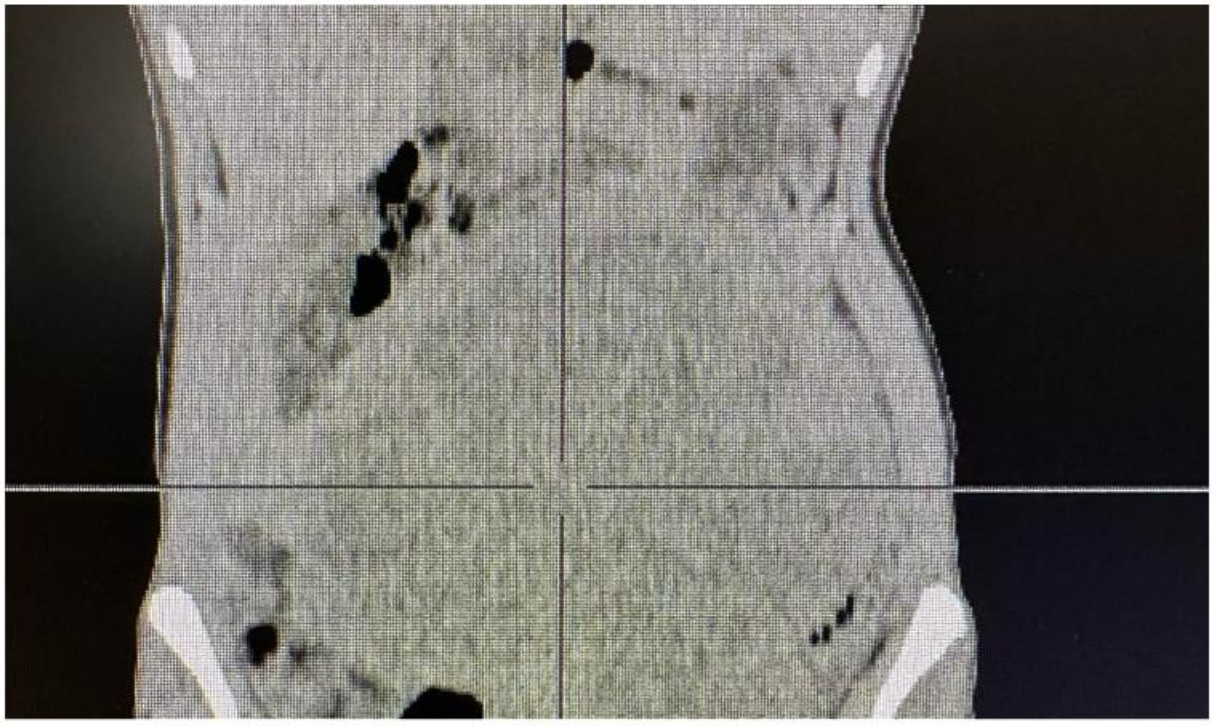

Figure 3 Frontal computed tomography scan showing a nodular lesion located in the mid-abdomen, lower abdomen, and upper abdomen.

Mass with rich arterial vascularization. There was an apparent effect of the mass in the form of compressed surrounding intestinal loops, clearly compressed left lumbar muscle, and left ureter. The modeled abdominal aorta was displaced to the right side. The left common iliac artery was also modeled, and the pelvicalyceal system of both kidneys was with a predominance of the left kidney. Urinary stasis was noted. Renal pelvis on the right side up to 16mm, calyxes up to 12mm; on the left side, pelvis 30mm in diameter, calyxes up to 24mm. The sub pelvic ureters were up to about 7mm wide. The left ureter in the abdominal segment was modeled by the tumor mass. The right ureter was without abnormalities. On the right side, two smaller focal lesions, ax. to 46 mm - consecutive implants - were found near the lower contour of the tumor. The uterus was enlarged, with irregular outlines. Myometrial was remodeled. The most giant myoma measured 5.6x4.7x5.2 cm. There were no abnormalities in the rest of the organs. The describing physician found a tumor of the left ovary with dissemination to the peritoneum.

In addition, a urinary tract infection with Escherichia coli bacteria was diagnosed. The patient was in good general condition, hemodynamically stable. CBC showed a slight increase above normal in platelets 494 10^3/μl (norm 150-400). An internal medicine consultation was requested, during which there were no contraindications to surgery. Surgical treatment consisted of total block excision of the tumor of the retroperitoneal space with partial resection of the 1st loop of the jejunum. An excision of the cancer from the mural peritoneum was performed. The course of the operation was uncomplicated, and the patient was discharged home in good local and general condition with recommendations. Microscopic examination of the tumor revealed a GIST of the small intestine (21x15x10 cm). Immunohistochemical examination showed CD 117 (+), SMA (-), S100 (-), and CD34 (-). Mitotic index below 5 division figures, risk of recurrence and progression 52%, intestinal incisional border free from progression, pT4.

3. DISCUSSION

Gastrointestinal lining tumors rarely occur in the pelvic region and can be misdiagnosed as ovarian tumors. This unusual localization means that they are usually noticed by gynecologists and are often diagnosed as metastatic ovarian tumors or gastrointestinal metastases before surgery (Mantese, 2019; Serrano and George, 2020; Von-Mehren et al., 2016). The diagnosis is frequently changed during surgery. Due to the change in diagnosis, the treatment method and surgical intervention are different. This was also the case in our case where, during gynecological surgery, the solid tumor found turned out to be an inflammatory neoplasm of the gastrointestinal tract. Therefore, when a solid mass is present in the pelvic region, especially if there are other unusual symptoms, the possibility of lesions other than those of gynecological origin should be considered (Casali, 2022). During surgery, every effort should be made to identify the origin of the tumor and associated anatomical structures.

The treatment of choice for GIST gastrointestinal submucosal tumors is surgery to completely resect the tumor (35-65% 5-year recurrence-free survival). Tumors and infiltrated organs within the macroscopic limits of healthy tissues are resected (Rutkowski et al., 2017b). There is no need to remove the surrounding lymph nodes during surgery, as GIST tumors do not metastasize to the regional lymphatic system (Bannon et al., 2017). During surgery, it is important to avoid damage to the tumor that may cause it to rupture, as this is a negative prognostic factor (Brownstein and DeLaney, 2020). Patients with locally advanced GIST cancer should not undergo extensive surgery involving resection of multiple organs (Cavnar et al., 2017). Reoperation for possible recurrences should be avoided, as they generally do not provide therapeutic benefit (Reichardt et al., 2015). In 3/4 of patients, macroscopic radical borders are achieved, while in 1/4 to 1/5 of patients, radical incisional borders are not achieved. Tumor spread within the abdominal organs is observed in 20-40% of patients (Joensuu et al., 2017).

In recent years, treatment with imatinib - it is a selective tyrosine kinase receptor inhibitor-has been introduced (Szucs et al., 2017). This drug can reduce the size of the tumor and consequently allow surgery with a reduced extent of resection necessary at the time of optimal response to this drug (Mir et al., 2016; Wei et al., 2021). The mitotic index value, tumor size and location, and the status of surgical margins are the most important risk factors for recurrence after resection of GIST gastrointestinal submucosal tumors (Cavnar et al., 2021). Patients with a high risk of recurrence should be given follow-up treatment with imatinib for three years. Studies have shown that therapy lasting three years with imatinib significantly prolongs relapse-free survival and overall survival (Schneider-Stock, 2018).

4. CONCLUSIONS

Complete surgical removal of the tumor should be achieved for GIST gastrointestinal subepithelial neoplasms, as despite significant advances in new drug treatment regimens such as tyrosine kinase inhibitors, radical surgical removal of the lesion offers the best chance for long-term survival.

Author's Contribution

Anna Józefiak: Conceptualization, methodology, investigation
Magdalena Szczepanik: Conceptualization, methodology, investigation
Gabriela Mazurek: Resources, investigation
Maciej Horbaczewski: Visualization, data curation
Przemysław Hałasiński: Resources, writing- rough preparation
Dominika Kropidłowska: Writing - Review and editing, supervision
Maria Myślicka: Conceptualization, writing- rough preparation
Jolanta Mazurek: Formal analysis, supervision
Kinga Piela: Writing - Review and editing, supervision
Cezary Bochyński: Methodology, data curation
Patryk Góralski: Conceptualization, data curation
Olgierd Betcher: Resources, writing- rough preparation
Ruslan Zavatskyi: Visualization, data curation
Project administration: Anna Józefiak

Informed consent

Not applicable.

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Conflict of interest

The authors declare that there is no conflict of interests.

Data and materials availability

All data sets collected during this study are available upon reasonable request from the corresponding author.

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